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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,613	10/24/2003	Mark A. Francis	K-2043	8816
27877	7590	12/30/2005	EXAMINER	
KENNAMETAL INC. P.O. BOX 231 1600 TECHNOLOGY WAY LATROBE, PA 15650			ADDISU, SARA	
			ART UNIT	PAPER NUMBER
			3722	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,613

Applicant(s)

FRANCIS ET AL.

Examiner

Sara Addisu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “convexly curved cutting edges of the inserts in Figure 1” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102 & 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

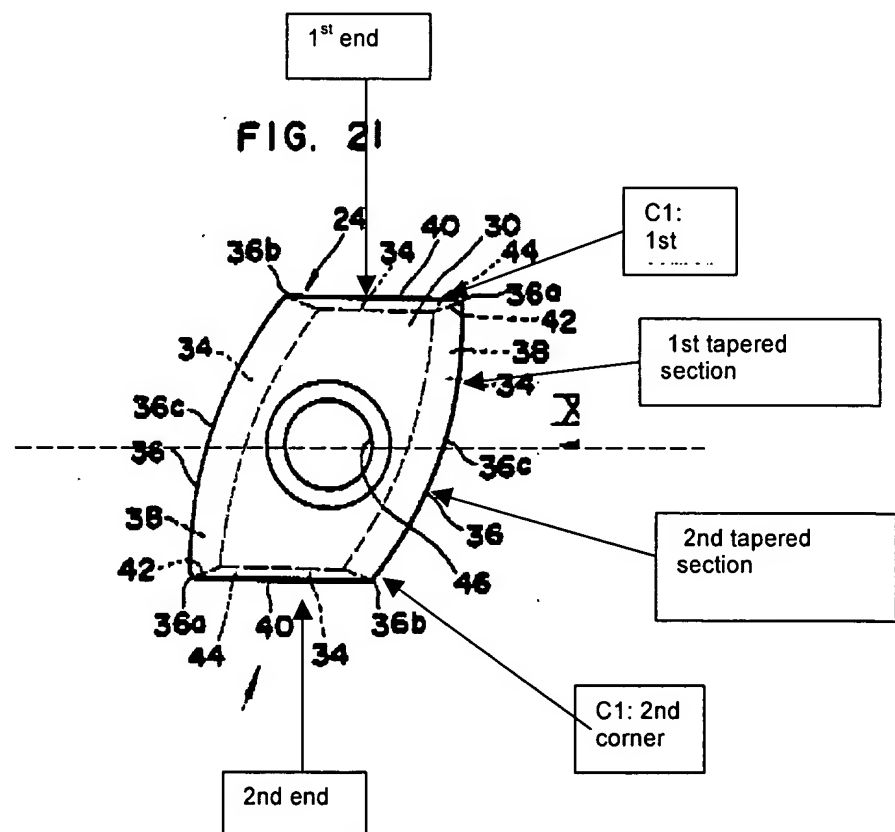
1. Claims 17, 27 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimomura et al. (USP 4,714,383), or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shimomura et al. (USP 4,714,383).

SHIMOMURA ET AL. teaches a rotary cutting tool (10c) including a body having a rotational central axis, plurality of adjacent flutes (first and second) (20c) formed in said body (12c) and including adjacent insert receiving pockets (22c) (first and second

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insert receiving pockets) with inserts (24a) mounted in them ('383, figure 3 and Col. 8, lines 47-60). SHIMOMURA ET AL. also teaches each cutting insert (24a) having a first end, a second end, a centerline (CT) disposed midway between the first and second ends, a tapered cutting edge (36) spanning between the first and the second end, a first corner (c1) formed at the juncture of the tapered cutting edge and the first end and a second corner (c2) formed at the juncture of the tapered cutting edge and the second end (see figure below).

It is inherent that as basic manufacturing practice, tools have a predetermined dimensional tolerance (also admitted by Applicant on Page 5, lines 29-30) and the tolerances are set such that the tool stays within the set tolerance to ensure that discrepancies and poor workmanship are not introduced. Therefore, it is inherent that SHIMOMURA ET AL.'s tool has a predetermined dimensional tolerance and the radial runout compensation dimension of the insert would have to be greater than the predetermined dimensional tolerance in order for it to function/cut properly. It is also inherent the maximum outward radial displacement of the inserts' corners are less than the predetermined dimensional tolerance. Additionally, it is inherent that SHIMOMURA ET AL.'s tool has a predetermined dimensional tolerance and the depth of the cuts (performed by the first and second taper of the cutting edge) will remain within the tolerance and therefore will never exceed it. Reading claims 17, 27 and 37 broadly, SHIMOMURA ET AL. reads on the claims since the claims do not define what the manufacturing tolerance is.



2. Claims 18, 19-26, 28-36 and 39-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimomura et al. (USP 4,714,383).

Regarding claims 18, 28 and 38, SHIMOMURA ET AL. discloses the centerline of the first insert and the end of the second insert overlapping (see figure below).

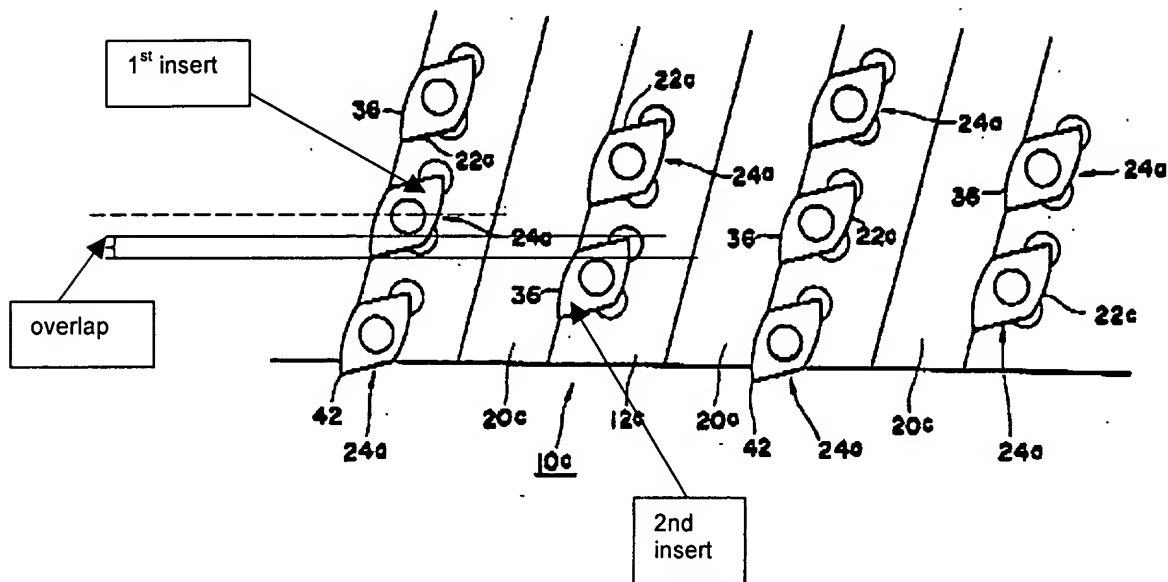
Regarding claims 20-23, 30-33, 40-42, SHIMOMURA ET AL. teaches in figure 35, cutting edges (36) parallel to each other. Additionally, the tapered cutting edge (36) of the insert is defined by a first and second tapered section, forming a convex curve configuration of a constant radius (see figure below). Regarding claims 24, 25, 34, 35, 43 and 44, although SHIMOMURA ET AL. is silent about the first and second flutes and insert receiving pockets being helically arranged, SHIMOMURA ET AL. teaches in figure 35, the cutting edge of each insert being axially spaced apart from the cutting edge of the next adjacent insert and the inserts in each flute are staggered such that two or more rows are necessary to produce one complete or "all effective" cutting edge therefore they are helically arranged. This insert/flute arrangement for a conventional helical mill is evidenced by DEROCHE ET AL. ('811, Col. 1, lines 14-15 and 18-23).

Regarding claims, 19, 29 and 39, SHIMOMURA ET AL. discloses the claimed invention, i.e. the first and second inserts overlapping (see figure below) except for the centerline of the first insert overlapping the first end of the second insert by more than half the

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length of the cutting edge of the first cutting insert. It would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the overlap between inserts seated in adjacent flutes depending on how much material is desired to be cut in one rotation, because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Regarding claims, 26, 36 and 45, SHIMOMURA ET AL. discloses the claimed invention, i.e. predetermined manufacturing tolerance and radial runout compensation (see 102/103 rejection above), except for predetermined manufacturing tolerance of 0.002 inches and radial runout compensation of 0.003 inches. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select predetermined manufacturing tolerance and radial runout compensation depending on the accuracy of the cut that is desired (i.e. rough finish versus precise cuts), because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch.

FIG. 35



Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

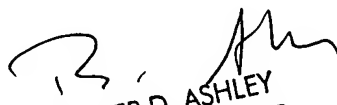
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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SA
12/27/05


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PRIMARY EXAMINER